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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/629,601	07/31/2000	Gregory E. Burns	2007.015000	4281

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EXAMINER	
PHAN, RAYMOND NGAN	

ART UNIT	PAPER NUMBER
2111	

DATE MAILED: 01/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/629,601	BURNS ET AL.	
	Examiner	Art Unit	
	Raymond Phan	2111	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 October 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,9-12,14-18,23 and 25* is/are rejected.

7)☒ Claim(s) *4-8, 13, 19-22 and 24* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Part III DETAILED ACTION

Notice to Applicant(s)

1. This action is responsive to the following communications: Appeal Brief filed on October 7, 2004.

2. This application has been examined. Claims 1-25 are pending.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-3, 9-12, 14-18, 23, 25 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Rikukawa et al. (US No. 5,940,629) in view of DeKoning et al. (US No. 6,178,520).

In regard to claim 1, Rikukawa et al. disclose the data storage system comprising a backplane (see figure 3); a plurality of storage devices coupled to the backplane (see figure 4, col. 4, line 60 through col. 5, line 15); a segemented bus (i.e. daisy chained connection) connected to the storage devices (see figure 4, col. 4, line 60 through col. 5, line 15); a plurality of input/output connectors coupled to the segmented bus (see figure 4, col. 4, line 60 through col. 5, line 15). But Rikukawa et al. do not specifically disclose a control board including a control logic adapted to determine an arrangement of connectors coupled to the input/output connectors and configure the segmentable bus to define a plurality of storage device arrays based on the arrangement. However DeKoning et al. disclose a control board including a control logic adapted to determine an

arrangement of connectors coupled to the input/output connectors and configure the segmentable bus to define a plurality of storage device arrays based on the arrangement (see col. 8, lines 48-67). Therefore, it would have been obvious to a person of an ordinary skill in the art at the time the invention was made to have combined the teachings of DeKoning et al. within the system of Rikukawa et al. because it would provide methods and associates structures for detecting a disk drive insertion or removal in an active storage subsystem devoid of special purpose circuits for such detection.

In regard to claims 2, 17, DeKoning et al. disclose a control board including a control logic adapted to determine an arrangement of connectors coupled to the input/output connectors and configure the segmentable bus to define a plurality of storage device arrays based on the arrangement (see col. 8, lines 48-67). Therefore, it would have been obvious to a person of an ordinary skill in the art at the time the invention was made to have combined the teachings of DeKoning et al. within the system of Rikukawa et al. because it would provide methods and associates structures for detecting a disk drive insertion or removal in an active storage subsystem devoid of special purpose circuits for such detection.

In regard to claims 3, 18, Rikukawa et al. disclose wherein the control board including a switch and control logic is adapted to determine the present/absence of the device connecting to the connector and configure the segmentable bus upon activation of the switch (see figure 4, col. 4, line 60 through col. 5, line 15).

In regard to claim 9, Rikukawa et al. disclose storage device is a tape drives (see col. 4, lines 29-41).

In regard to claim 10, DeKoning et al. disclose storage device is a hard disk drives (see abstract). Therefore, it would have been obvious to a person of an

ordinary skill in the art at the time the invention was made to have combined the teachings of DeKoning et al. within the system of Rikukawa et al. because it would provide methods and associates structures for detecting a disk drive insertion or removal in an active storage subsystem devoid of special purpose circuits for such detection.

In regard to claim 11, DeKoning et al. disclose storage device is a hot plug (see col. 3, lines 1-14). Therefore, it would have been obvious to a person of an ordinary skill in the art at the time the invention was made to have combined the teachings of DeKoning et al. within the system of Rikukawa et al. because it would provide methods and associates structures for detecting a disk drive insertion or removal in an active storage subsystem devoid of special purpose circuits for such detection.

In regard to claims 12, 23, Rikukawa et al. disclose wherein the control logic is adapted to determined the presence/absence of devices connecting to the connectors by monitoring the voltage state of the particular line of the input/output connectors (see col. 7, lines 5-22).

In regard to claim 14, Rikukawa et al. disclose wherein the segmentable bus is a SCSI bus (see col. 4, lines 1-25).

In regard to claims 15, 25, Rikukawa et al. disclose the data storage system comprising a backplane (see figure 3); a plurality of storage devices coupled to the backplane (see figure 4, col. 4, line 60 through col. 5, line 15); a segemented bus (i.e. daisy chained connection) connected to the storage devices (see figure 4, col. 4, line 60 through col. 5, line 15); a plurality of input/output connectors coupled to the segmented bus (see figure 4, col. 4, line 60 through col. 5, line 15). But Rikukawa et al. do not specifically disclose a control board including a control

logic adapted to determine an arrangement of connectors coupled to the input/output connectors and configure the segmentable bus to define a plurality of storage device arrays based on the arrangement. However DeKoning et al. disclose a control board including a control logic adapted to determine an arrangement of connectors coupled to the input/output connectors and configure the segmentable bus to define a plurality of storage device arrays based on the arrangement (see col. 8, lines 48-67); grouping subset of the storage devices onto isolated bus segementable bus in the storage array based on the arrangement of the connectors (see col. 9, line 39 through col. 10, line 14). Therefore, it would have been obvious to a person of an ordinary skill in the art at the time the invention was made to have combined the teachings of DeKoning et al. within the system of Rikukawa et al. because it would provide methods and associates structures for detecting a disk drive insertion or removal in an active storage subsystem devoid of special purpose circuits for such detection.

In regard to claim 16, DeKoning et al. disclose wherein the storage array including a bus coupled to the storage devices, and grouping the subsets comprising a segmentable bus to defined the isolated bus segments (see col. 9, line 39 through col. 10, line 14). Therefore, it would have been obvious to a person of an ordinary skill in the art at the time the invention was made to have combined the teachings of DeKoning et al. within the system of Rikukawa et al. because it would provide methods and associates structures for detecting a disk drive insertion or removal in an active storage subsystem devoid of special purpose circuits for such detection.

Response to Arguments

5. In view of remarks filed on October 7, 2004, claims 1, 15, 25 have been

fully considered but they are not deemed to be persuasive.

In regard to claim 1, Applicant(s) argue that ...DeKoning et al. fail to teach or suggest configuring a segmentable bus to define array of storage devices based on the arrangement of connectors... (page 7). The Examiner does not agree. DeKoning et al. teach the configuration manager (CM) 206 creates and maintains the present RAID geometry information (see col. 7, lines 31-41). Furthermore DeKoning teach the CM responds to the notification of removal or insertion of the disk drive (i.e. storage devices) from the I/O connectors on the SCSI bus to reconfigure the RAID LUN (see col. 8, lines 53-58). Upon the removal or insertion of the disk drive, CM determines and reconfigure the system based on the presence or absence of the disk drives connected to the connectors.

In regard to claims 15, 25, Applicant(s) argue that ...Rikukawa teach the "control board" that includes a "control logic" that performs various functions... (page 8). The Examiner does not agree. Examiner stated that Rikukawa does *not* disclose the control board that includes the control logic. Rikukawa discloses the grouping of presence of the active storage devices connected to the I/O connectors (i.e. the arrangement of the I/O connector) from the polling steps and reconfigure the SCSI system based on the polling step (see col. 10, line 26 through col. 11, line12).

Allowable Subject Matter

6. Claims 4-8, 13, 19-22, and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. Claims 1-3, 9-12, 14-18, 23, 25 are rejected. Claims 4-8, 13, 19-22 and 24 are objected.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Raymond Phan, whose telephone number is (571) 272-3630. The examiner can normally be reached on Monday-Friday from 6:30AM- 4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Primary, Paul Myers can be reached on (571) 272-3639 or via e-mail addressed to paul.myers@uspto.gov. The fax phone number for this Group is (703) 872-9306.

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [**raymond.phan@uspto.gov**].

All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see hop://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 central telephone number is (571) 272-2100.

Paul R. Myers

PAUL R. MYERS
PRIMARY EXAMINER

Raymond Phan
1/9/05